

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 2 of 11

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A variable resistor comprising:
a case;

a rotor rotatably mounted in said case, said rotor being arranged to be rotationally operated from outside of the case;

a substrate provided in said case, said substrate having a collector electrode disposed at an approximately central portion of the surface of the substrate and having an arcuate resistor disposed on the surface of the substrate around said collector electrode so as to be substantially concentric therewith;

a slider mounted on said rotor so as to be rotatable together with said rotor; said slider including:

a base portion with a rear surface being supported by said rotor;

an annular arm portion having a bent up portion bent along a bending line corresponding to a diameter of the annular arm portion and arranged to make sliding contact with said arcuate resistor of said substrate;

a substantially I-shaped arm portion located inside of the annular arm portion, extending in a direction that is substantially perpendicular to the bending line, and arranged to make contact with said collector electrode; and

a folded back portion ~~coupling provided on~~ one end of the base portion which directly connects with the annular arm portion and the substantially I-shaped arm portion to the base portion.

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 3 of 11

Claim 2 (previously presented): A variable resistor according to claim 1, wherein said annular arm portion, said substantially I-shaped arm portion, and said base portion are disposed in close contact with each other.

Claim 3 (previously presented): A variable resistor according to claim 1, wherein said substantially I-shaped arm portion is raised without folding said substantially I-shaped arm portion and is raised by a portion of the folded back portion which is bent in a direction opposite to the direction of the bent up portion of said annular arm portion.

Claim 4 (original): A variable resistor according to claim 3, wherein an inclined surface is provided on a bottom surface of the rotor corresponding to the folded back portion of the slider in the direction opposite to the bending-up direction of the annular arm portion.

Claim 5 (original): A variable resistor according to claim 1, wherein the case has a lower-end opening portion and the substrate is fixed to the lower-end opening portion of the case.

Claim 6 (original): A variable resistor according to claim 1, further comprising protrusions provided on the bottom surface of the rotor and arranged to prevent slipping rotation of the slider with respect to the rotor.

Claim 7 (original): A variable resistor according to claim 1, wherein the substrate includes through holes and lead terminals extend through the through holes in the substrate.

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 4 of 11

Claim 8 (previously presented): A variable resistor according to claim 1, wherein a sliding contact member for making sliding contact with the arcuate resistor of the substrate is arranged to protrude from a tip portion of the annular arm portion.

Claim 9 (previously presented): A variable resistor according to claim 1, wherein a contact member arranged to contact the collector electrode is arranged to protrude from a tip portion of the substantially I-shaped arm portion.

Claim 10 (original): A variable resistor according to claim 1, wherein the base portion has a disk configuration having substantially the same diameter as the annular arm portion.

Claim 11 (previously presented): A variable resistor according to claim 1, wherein the rotor includes protrusions and a pair of through holes for fitting the protrusions of the rotor are provided in the annular arm portion and the base portion.

Claim 12 (original): A variable resistor according to claim 1, wherein an effective spring length of the annular arm portion and an effective spring length of the substantially I-shaped arm portion of the slider are substantially the same.

Claim 13 (original): A variable resistor according to claim 1, wherein a spring elasticity of the annular arm portion and the substantially I-shaped arm portion are substantially equal.

Claim 14 (currently amended): A hearing aid comprising:
a variable resistor including:

a case;

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 5 of 11

a rotor rotatably mounted in said case, said rotor being arranged to be rotationally operated from outside of the case;

a substrate provided in said case, said substrate having a collector electrode disposed at an approximately central portion of the surface of the substrate and having an arcuate resistor disposed on the surface of the substrate around said collector electrode so as to be substantially concentric therewith;

a slider mounted on said rotor so as to be rotatable together with said rotor;

said slider including:

a base portion with a rear surface being supported by said rotor;

an annular arm portion having a bent up portion bent along a bending line and arranged to make sliding contact with said arcuate resistor of said substrate;

a substantially I-shaped arm portion located inside of the annular arm portion, extending in a direction that is substantially perpendicular to the bending line, and arranged to make contact with said collector electrode; and

a folded back portion ~~coupling provided on one end of the base portion which directly connects with the annular arm portion and the substantially I-shaped arm portion to the base portion.~~

Clam 15 (previously presented): A hearing aid according to claim 14, wherein said annular arm portion, said substantially I-shaped arm portion, and said base portion are disposed in close contact with each other.

Claim 16 (previously presented): A hearing aid according to claim 14, wherein said substantially I-shaped arm portion is raised without folding said substantially I-

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 6 of 11

shaped arm portion and is raised by a portion of the folded back portion which is bent in a direction opposite to the direction of the bent up portion of said annular arm portion.

Claim 17 (original): A hearing aid according to claim 16, wherein an inclined surface is provided on a bottom surface of the rotor corresponding to the folded back portion of the slider in the direction opposite to the bending-up direction of the annular arm portion.

Claim 18 (original): A hearing aid according to claim 14, wherein the case has a lower-end opening portion and the substrate is fixed to the lower-end opening portion of the case.

Claim 19 (original): A hearing aid according to claim 14, further comprising protrusions provided on the bottom surface of the rotor and arranged to prevent slipping rotation of the slider with respect to the rotor.

Claim 20 (original): A hearing aid according to claim 14, wherein the substrate includes through holes and lead terminals extend through the through holes in the substrate.

Claim 21 (previously presented): A hearing aid according to claim 14, wherein a sliding contact member for making sliding contact with the arcuate resistor of the substrate is arranged to protrude from a tip portion of the annular arm portion.

Claim 22 (previously presented): A hearing aid according to claim 14, wherein a contact member arranged to contact the collector electrode is arranged to protrude from a tip portion of the substantially I-shaped arm portion.

Serial No. 09/708,817
December 3, 2003
Reply to the Office Action dated August 8, 2003
Page 7 of 11

Claim 23 (original): A hearing aid according to claim 14, wherein the base portion has a disk configuration having substantially the same diameter as the annular arm portion.

Claim 24 (previously presented): A hearing aid according to claim 14, wherein the rotor includes protrusions and a pair of through holes for fitting the protrusions of the rotor are provided in the annular arm portion and the base portion.

Claim 25 (original): A hearing aid according to claim 14, wherein an effective spring length of the annular arm portion and an effective spring length of the substantially I-shaped arm portion of the slider are substantially the same.

Claim 26 (original): A hearing aid according to claim 14, wherein a spring elasticity of the annular arm portion and the substantially I-shaped arm portion are substantially equal.